

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

SINGULAR COMPUTING LLC,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

C.A. No. 1:19-cv-12551-FDS

Hon. F. Dennis Saylor IV

**DEFENDANT GOOGLE LLC'S RESPONSE TO SINGULAR COMPUTING LLC'S
STATEMENT OF UNDISPUTED MATERIAL FACTS IN SUPPORT OF MOTION FOR
PARTIAL SUMMARY JUDGMENT OF VALIDITY BASED ON *INTER PARTES*
REVIEW ESTOPPEL UNDER 35 U.S.C. § 315(e)(2)**

Pursuant to Fed. R. Civ. P. 56 and Local Rule 56.1, Defendant Google LLC (“Google”) submits the following response to Plaintiff’s Statement of Undisputed Material Facts in support of its Motion for Partial Summary Judgment of validity based upon *inter partes* review estoppel under 35 U.S.C § 315(e)(2).

No.	Plaintiff's Purported Statement of Fact	Plaintiff's Purported Supporting Evidence	Google's Response to Singular's Purported Statement of Fact and Responsive Statements of Material Fact for Which Google Contends there is a Genuine Issue of Dispute	Google's Evidence In Support Of Its Response to Singular's Purported Statement of Facts
1.	Singular is the owner, by assignment of U.S. Patent No. 10,416,961 ("the '961 patent").	Amended Complaint, ¶¶ 27-28; Dkt. No. 44.		
2.	Singular is the owner, by assignment of U.S. Patent No. 9,218,156 ("the '156 patent").	Amended Complaint, ¶¶ 27-28; Dkt. No. 44.		
3.	Singular is the owner, by assignment of U.S. Patent No. 8,407,273 ("the '273 patent").	Amended Complaint, ¶¶ 27-28; Dkt. No. 44.		
4.	Singular filed the Complaint in this action on December 20, 2019.	Dkt. No. 1.		
5.	Singular filed the Amended Complaint in this action on March 20, 2020.	Dkt. No. 37.		
6.	Google LLC ("Google") answered the Amended Complaint on July 9, 2020.	Dkt. No. 53.		
7.	Google filed an Amended Answer on July 23, 2020.	Dkt. No. 57.		
8.	In the First Affirmative Defense in its Amended Answer, Google alleges that the claims of the patents-in-suit are invalid under 35 U.S.C. §§ 102 and 103.	Dkt. No. 57, p. 23.		

No.	Plaintiff's Purported Statement of Fact	Plaintiff's Purported Supporting Evidence	Google's Response to Singular's Purported Statement of Fact and Responsive Statements of Material Fact for Which Google Contends there is a Genuine Issue of Dispute	Google's Evidence In Support Of Its Response to Singular's Purported Statement of Facts
9.	On October 30, 2020, Google filed a Petition for <i>Inter Partes</i> Review ("IPR") of the '961 patent that included an Appendix of Exhibits identifying numerous alleged prior art patents and printed publications and arguing that the challenged claims are invalid for obviousness.	Declaration of Kevin Gannon, Ex. D.	Admitted except that whether any of the evidence identified in the Appendix of Exhibits is a "printed publication" is a legal conclusion under 35 U.S.C. 102(a)/(b), not a fact. <i>See SRI Int'l, Inc. v. Internet Sec. Sys., Inc.</i> , 511 F.3d 1186, 1194 (Fed. Cir. 2008) ("Because there are many ways in which a reference may be disseminated to the interested public, 'public accessibility' has been called the touchstone in determining whether a reference constitutes a 'printed publication' bar under 35 U.S.C. § 102(b).").	
10.	The Patent Trial and Appeal Board ("PTAB") assigned the '961 IPR number IPR2021-00155.	Declaration of Kevin Gannon, Ex. D.		

No.	Plaintiff's Purported Statement of Fact	Plaintiff's Purported Supporting Evidence	Google's Response to Singular's Purported Statement of Fact and Responsive Statements of Material Fact for Which Google Contends there is a Genuine Issue of Dispute	Google's Evidence In Support Of Its Response to Singular's Purported Statement of Facts
11.	On November 5, 2020, Google filed a Petition for IPR of the '156 patent that included an Appendix of Exhibits identifying numerous alleged prior art patents and printed publications and arguing that the challenged claims are invalid for obviousness.	Declaration of Kevin Gannon, Ex. E.	Admitted except that whether any of the evidence identified in the Appendix of Exhibits is a "printed publication" is a legal conclusion under 35 U.S.C. 102(a)/(b), not a fact. <i>See SRI Int'l, Inc. v. Internet Sec. Sys., Inc.</i> , 511 F.3d 1186, 1194 (Fed. Cir. 2008) ("Because there are many ways in which a reference may be disseminated to the interested public, 'public accessibility' has been called the touchstone in determining whether a reference constitutes a 'printed publication' bar under 35 U.S.C. § 102(b).").	
12.	The PTAB assigned the '156 IPR number IPR2021-00165.	Declaration of Kevin Gannon, Ex. E.		

No.	Plaintiff's Purported Statement of Fact	Plaintiff's Purported Supporting Evidence	Google's Response to Singular's Purported Statement of Fact and Responsive Statements of Material Fact for Which Google Contends there is a Genuine Issue of Dispute	Google's Evidence In Support Of Its Response to Singular's Purported Statement of Facts
13.	On November 6, 2020, Google filed a Petition for IPR of the '273 patent that included an Appendix of Exhibits identifying numerous alleged prior art patents and printed publications and arguing that the challenged claims are invalid for obviousness.	Declaration of Kevin Gannon, Ex. F.	Admitted except that whether any of the evidence identified in the Appendix of Exhibits is "printed publication" is a legal conclusion under 35 U.S.C. 102(a)/(b), not a fact. <i>See SRI Int'l, Inc. v. Internet Sec. Sys., Inc.</i> , 511 F.3d 1186, 1194 (Fed. Cir. 2008) ("Because there are many ways in which a reference may be disseminated to the interested public, 'public accessibility' has been called the touchstone in determining whether a reference constitutes a 'printed publication' bar under 35 U.S.C. § 102(b).").	
14.	The PTAB assigned the '273 IPR number IPR2021-00179.	Declaration of Kevin Gannon, Ex. F.		
15.	After a consolidated trial, the PTAB issued a Final Written Decision in IPR2021-00155 on May 11, 2022, finding, <i>inter alia</i> , that claims 3 and 23 of the '961 patent are not unpatentable.	Declaration of Kevin Gannon, Ex. A.	Admitted. Google notes for completeness that claims 1, 2, 4, 5, 10, 13, 14, 21, 24, and 25 of the '961 patent were found unpatentable.	Ex. A to Gannon Decl.

No.	Plaintiff's Purported Statement of Fact	Plaintiff's Purported Supporting Evidence	Google's Response to Singular's Purported Statement of Fact and Responsive Statements of Material Fact for Which Google Contends there is a Genuine Issue of Dispute	Google's Evidence In Support Of Its Response to Singular's Purported Statement of Facts
16.	After the consolidated trial, the PTAB issued a Final Written Decision in IPR2021-00165 on May 11, 2022, finding, <i>inter alia</i> , that claims 3-8 of the '156 patent are not unpatentable.	Declaration of Kevin Gannon, Ex. B.	Admitted. Google notes for completeness that claims 1, 2, 16, and 33 of the '156 patent were found unpatentable.	Ex. B to Gannon Decl.
17.	After the consolidated trial, the PTAB issued a Final Written Decision in IPR2021-00179 on May 11, 2022, finding, <i>inter alia</i> , that claims 3-20, 25, 34-61, 63 and 67-70 of the '273 patent are not unpatentable.	Declaration of Kevin Gannon, Ex. C.	Admitted. Google notes for completeness that claims 1, 2, 21-24, 26, 28, 32, and 33 of the '273 patent were found unpatentable.	Ex. C to Gannon Decl.
18.	Google served its Responsive Contentions Regarding Non-Infringement and Invalidity with attached claim charts 1-18 on counsel for Singular on November 6, 2020.	Declaration of Kevin Gannon, Ex. H.		
19.	Google was aware of the patents and printed publications disclosed in its Petitions for IPR on or before October 30, 2020.	Declaration of Kevin Gannon, Exs. F, G.		

No.	Plaintiff's Purported Statement of Fact	Plaintiff's Purported Supporting Evidence	Google's Response to Singular's Purported Statement of Fact and Responsive Statements of Material Fact for Which Google Contends there is a Genuine Issue of Dispute	Google's Evidence In Support Of Its Response to Singular's Purported Statement of Facts
20.	Google was aware of the patents and printed publications disclosed in its Responsive Contentions Regarding Non-Infringement and Invalidity on or before November 6, 2020.	Declaration of Kevin Gannon, Exs. H-Y.		
21.	Google reasonably could have raised in one or more of its Petitions for IPR the prior art identified in its Petitions in addition to Dockser, Tong <i>et al.</i> and MacMillan.	Declaration of Kevin Gannon, Exs. D-G.	Denied. Google could not have raised in its petitions for <i>inter partes</i> review any grounds of invalidity based in whole or in part on a prior-art product, device, or system.	35 U.S.C. §§ 311(b), 315(e)(2).
22.	Google reasonably could have raised in one or more of its Petitions for IPR the prior art printed publications cited in its Invalidity Contentions and claim charts 1-17 served on counsel for Singular on November 6, 2020.	Declaration of Kevin Gannon, Exs. H-Y.	Denied. Google could not have raised in its petitions for <i>inter partes</i> review any grounds of invalidity based in whole or in part on a prior-art product, device, or system.	35 U.S.C. §§ 311(b), 315(e)(2).
23.	In its invalidity claim charts 1-17, Google asserts that each element of the asserted claims is described in the patents and/or printed publications as set forth in the charts.	Declaration of Kevin Gannon, Exs. I-Y.	Denied. As Singular has conceded in its memorandum in support of its motion for summary judgment, and as is reflected in the claim charts themselves, Google also asserted in its invalidity contentions that the asserted claims are anticipated and/or rendered obvious by multiple prior-art systems.	Dkt. 377-1 at 6-7 (admitting that Google's claim charts "disclose several purported prior art devices"); Exs. R, K, W to Gannon Decl.

No.	Plaintiff's Purported Statement of Fact	Plaintiff's Purported Supporting Evidence	Google's Response to Singular's Purported Statement of Fact and Responsive Statements of Material Fact for Which Google Contends there is a Genuine Issue of Dispute	Google's Evidence In Support Of Its Response to Singular's Purported Statement of Facts
24.	In each of its 17 claim charts, Google mapped the elements of the claims solely to the cited prior art printed publications.	Declaration of Kevin Gannon, Exs. I-Y.	Denied. As Singular has conceded in its memorandum in support of its motion for summary judgment, and as is reflected in the claim charts themselves, Google asserted in its invalidity contentions that the asserted claims are anticipated and/or rendered obvious by multiple prior-art systems. Google's claim charts mapped the elements of the asserted claims to the corresponding features, functionality, and/or operation of those prior-art systems.	Dkt. 377-1 at 6-7 (admitting that Google's claim charts "disclose several purported prior art devices"); Exs. R, K, W to Gannon Decl.
25.	In its invalidity chart for GRAPE-3 device, Google sets forth an element by element comparison citing solely to prior art printed publications that Google asserts describe the structure and operation of the device.	Declaration of Kevin Gannon, Ex. W.	Denied. Google's claim charts compared the elements of the asserted claims to the corresponding features, functionality, and/or operation of the identified prior-art systems.	Ex. W to Gannon Decl.

No.	Google's Statement of Fact	Google's Supporting Evidence
1.	The grounds of invalidity that Google intends to present at trial are not ones that were raised or reasonably could have been raised in a petition for <i>inter partes</i> review.	35 U.S.C. §§ 311(b), 315(e)(2); Google's forthcoming expert reports, which are not yet due but which Google anticipates will issue on December 22, 2022
2.	An invalidity ground Google intends to present at trial will be that a prior-art computing system referred to as 'GRAPE-3' invalidates Singular's asserted patent claims as anticipated and/or obvious because the system was 'known or used . . . in this country' under Section 102(a), in 'public use . . . in this country' under Section 102(b), and/or had been 'made in this country by another inventor who had not abandoned, suppressed, or concealed [it]' under Section 102(g)(2).	Google's forthcoming expert reports, which are not yet due but which Google anticipates will issue on December 22, 2022
3.	Google could not have advanced in a petition for <i>inter partes</i> review an invalidity ground based on the GRAPE-3 system being "known or used . . . in this country" under Section 102(a), in "public use . . . in this country" under Section 102(b), and/or having been "made in this country by another inventor who had not abandoned, suppressed, or concealed [it]" under Section 102(g)(2).	35 U.S.C. §§ 311(b), 315(e)(2)
4.	The evidence Google may rely on to prove invalidity includes the following: The Okamura 1992 and 1993 articles describing the various elements of the GRAPE-3 system; the Makino 2003 and Makino 2005 articles that provide background regarding GRAPE systems in general, including GRAPE-3; the testimony of Google expert John Gustafson regarding his having seen a GRAPE-3 at the 1992 International Conference for High Performance Computing, Networking, Storage and Analysis (also known as "Supercomputing '92" or "SC1992") which was held in Minneapolis, Minnesota, USA, and regarding the number of execution units performing at least the operation of multiplication on 32-bit floating point formats that were present in the types of host computers used with the GRAPE-3.	Gustafson Decl. ¶¶ 18-21; Google's forthcoming expert reports, which are not yet due but which Google anticipates will issue on December 22, 2022
5.	An invalidity ground Google intends to present at trial will be that a prior-art computing system referred to as 'CNAPS' invalidates Singular's asserted patent claims as anticipated and/or obvious because the system was 'known or used . . . in this country' under Section 102(a), in 'public use . . . in this country' under Section 102(b), and/or had been 'made in this country by another inventor who had not abandoned, suppressed, or concealed [it]' under Section 102(g)(2).	Google's forthcoming expert reports, which are not yet due but which Google anticipates will issue on December 22,

		2022
6.	Google could not have advanced in a petition for <i>inter partes</i> review an invalidity ground based on the CNAPS system being “known or used . . . in this country” under Section 102(a), in “public use . . . in this country” under Section 102(b), and/or having been “made in this country by another inventor who had not abandoned, suppressed, or concealed [it]” under Section 102(g)(2).	35 U.S.C. §§ 311(b), 315(e)(2)
7.	The evidence Google may rely on the prove invalidity includes the materials produced in response to a third-party subpoena to Dr. Dan Hammerstrom, the founder and Chief Technology Officer of Adaptive Solutions, who designed the CNAPS chip.	Gustafson Decl. ¶¶ 7-12; Google’s forthcoming expert reports, which are not yet due but which Google anticipates will issue on December 22, 2022
8.	An invalidity ground Google intends to present at trial will be that a prior-art computing system referred to as ‘VFLOAT’ invalidates Singular’s asserted patent claims as anticipated and/or obvious because the system was 'known or used . . . in this country' under Section 102(a), in 'public use . . . in this country' under Section 102(b), and/or had been 'made in this country by another inventor who had not abandoned, suppressed, or concealed [it]' under Section 102(g)(2).	Google’s forthcoming expert reports, which are not yet due but which Google anticipates will issue on December 22, 2022
9.	Google could not have advanced in a petition for <i>inter partes</i> review an invalidity ground based on the VFLOAT system being “known or used . . . in this country” under Section 102(a), in “public use . . . in this country” under Section 102(b), and/or having been “made in this country by another inventor who had not abandoned, suppressed, or concealed [it]” under Section 102(g)(2).	35 U.S.C. §§ 311(b), 315(e)(2)
10.	The evidence Google may rely on the prove invalidity includes the following: The 2002-era VHDL source code for VFLOAT; public, oral presentations by Dr. Leeser and her graduate students regarding VFLOAT and its use on FPGA hardware, which show that the system was in public use, publicly known, and not abandoned, suppressed, or concealed; the percipient testimony of Dr. Leeser, based on her recollection and corroborated by both non-public and public documents, regarding the development, use, and public disclosures of and relating to VFLOAT; non-public details regarding the workstation Dr. Leeser and her team in the RCL used in connection with VFLOAT that are material to proving the system meets or satisfies certain claim limitations; and the written thesis of one of Dr. Leeser’s graduate students, Pavle Belanović, which corroborates certain aspects of Dr. Leeser’s testimony.	Leeser Decl. ¶¶ 18, 20-25; Gustafson Decl. ¶¶ 7-12; Google’s forthcoming expert reports, which are not yet due but which Google anticipates will issue on December 22, 2022

Respectfully submitted,

Dated: December 9, 2022

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CERTIFICATE OF SERVICE

I certify that this document is being filed through the Court's electronic filing system, which serves counsel for other parties who are registered participants as identified on the Notice of Electronic Filing (NEF). Any counsel for other parties who are not registered participants are being served by first class mail on the date of electronic filing.

/s/ Nathan R. Speed

Nathan R. Speed